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chemistry, and toxicology. The first part is devoted to descriptions of the three species which the author believes are responsible for the deaths from mushroom poisoning: *Amanita phalloides*, *A. verna*, and *A. virosa*. *A. phalloides* is recognized as a very variable species. Good descriptions are given of these species and of the varieties of *A. phalloides*, and the determination of the species is further aided by colored illustrations, including the American varieties which are copied from PECK's Report. Not all students may agree with FERRY in his treatment of these species, but it is doubtful if anyone can at present, or even in the near future, limit and characterize the species of *Amanita* in a manner which will be acceptable to all. The author's object, however, is not so much to limit precisely the natural species as it is to present characters and illustrations by which the deadly species of this genus may be recognized by those who have little technical knowledge of the fungi.

The second part, covering more than 70 pages, is a thorough discussion of the recent work, in Europe and America, on the chemistry and toxicology of these three species, particularly of *A. phalloides*. There are two important toxic principles. Phalline (KOBERT) or "Amanita-hemolysine" (FORD) is a hemolytic agent which dissolves the red blood corpuscles. Its chemical nature is uncertain (FORD), but temperatures of 65–70° C. destroy it, so that thorough cooking renders this poison innocuous. The other toxic principle is "Amanita-toxine" (FORD), which is not destroyed by heat, and for which no antidote is known. Its chemical nature is unknown. Hemolysine is found in certain of the edible fungi, for example *Amanita rubescens*, and this emphasizes the necessity of thorough cooking of all mushrooms. There is a thorough discussion of the symptoms of poisoning by these toxins, treatment, precautionary measures, experiments on immunization, etc. The work is a valuable one for those interested in the determination of these poisonous species, and particularly for the physician, pharmacist, etc.—G. F. ATKINSON.

Jurassic cones.—NATHORST[20] has described two new species of the Jurassic cone-impression known as *Cycadocarpidium*, has established definitely its identity with the leaf-genus *Podozamites*, and has discussed the relationship of this interesting gymnosperm. The leaves (*Podozamites*) are linear or elliptical, and seem, in certain species at least, to be borne on definite short shoots. The sporophylls (*Cycadocarpidium*) are much like the vegetative leaves, and are arranged in loose cones. Each sporophyll bears at its base two ovules, with pointed, winglike appendages. *Cycadocarpidium*, at first believed to be the fructification of a cycad related to the Zamieae, is considered by the author as a possible connecting form between cycadophytes and conifers. A fuller knowledge of both the vegetative and reproductive structures of the plant, however, lends little support to the theory of its cycadean affinity, and it seems best included among those strange mesozoic conifers of whose structure and relationships so much is yet to be learned.—E. W. SINNOTT.

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[20] NATHORST, A. G., Über die Gattung *Cycadocarpidium* (Nathorst) nebst einigen Bemerkungen über *Podozamites*. Kungl. Svensk. Vetensk. Handl. **46:** no. 8. pp. 11.

The carpophore of Agaricaceae.—An investigation of the development of the carpophore of several species of the Agaricaceae by BEER[21] brings still further evidence supporting the now generally accepted view that the hymeniun of the Agaricaceae arises endogenously, and not exogenously in the manner first described by HARTIG. As to the relative priority of the differentiation of the pileus and the hymenial primordium, BEER finds that in *Hypholoma fascicularis* and *Clitocybe laccata* the pileus is differentiated first, while in *Armillaria mellea* the hymenium is the first structure to become visible. In this respect *Armillaria mellea* agrees with *A. mucida* as described by FISCHER, and with *Agaricus campestris* as described by ATKINSON. These forms show that the generalization of FAYOD, that the pileus is first differentiated in all cases, does not hold for all forms.—H. HASSELBRING.

A paper atmometer.—In an effort to obtain an instrument for the measurement of evaporation with temperature relations comparable to those of the foliage leaf, LIVINGSTON[22] has devised a paper cup atmometer, which is a modification of the Piche instrument. The advantages claimed for the new device are that as it contains a much smaller volume of water than the porous cup atmometer, it responds more promptly to changes in the external temperature. The surface of the paper cup may also be colored and the atmometer used for the measurement of light effects. This form of atmometer is likely to prove most useful in exact laboratory and controlled experiments, but will not replace the more durable clay cup for ecological field studies.—GEO. D. FULLER.

Composition of soil water and plant distribution.—The percentage of calcium and magnesium salts in solution in the soil water is believed by LANGERON[23] to give adequate explanation for many local peculiarities of plant distribution. To facilitate such studies he describes methods of water analysis which may be used in the field and laboratory, giving, with a minimum expenditure of time and effort, results sufficiently accurate to be related to differences in the composition of various plant associations. He has obtained promising results by applying his methods to the study of the bryophyte flora of the Bouche d'Erquy.—GEO. D. FULLER.

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[21] BEER, R., Notes on the development of the carpophore of some Agaricaceae. Ann. Botany **25**:683–689. *pl. 1.* 1911.

[22] LIVINGSTON, B. E., Paper atmometers for studies in evaporation. Plant World **14**:281–289. 1911.

[23] LANGERON, MAURICE, Valeur de l'hydrotimétrie en géographie botanique pour l'étude des accidents locaux. Bull. Soc. Bot. France **58**:236–245, 266–273, 327–336, 421–428. 1911.